

Town of Hillsborough

ANNUAL WASTEWATER QUALITY REPORT

Fiscal Year 2016(July 2015-June 2016)

Released August 2016

Welcome to Hillsborough's Annual Wastewater Quality Report! The utilities staff strives to provide efficient and quality service to our customers, and share relevant information to ensure your understanding of our operations.

During Fiscal Year 2016, the following projects were completed or in progress:

- The sewer crews cleaned over 3.03 miles of sewer lines, and inspected over 4.42 miles of sewer line in FY16.
- Completed relining of portions of the Eno River Sewer Outfall, and preparations to reline additional sections, some of which are estimated to be about 50 years old. Rehabilitation work began in August 2015. Previous inspections revealed some areas in need of repairs, but most of the piping is in good condition.
- Design of a new aeration process for the water discharged to the Eno River was completed in FY16 and construction is set to begin in late FY17.
- New chemical storage containment system was constructed at the Wastewater Treatment Plant (WWTP) to prevent unintended spillage from reaching the environment.
- Future processes for compliance with the Falls Lake Rules were evaluated and bench-scale tested. Completion of a holistic master plan will begin in FY19.
- The outstanding success in nutrient removal at the Hillsborough wastewater plant was highlighted in an International Water Association conference in Denver, Colorado. Additionally, the successes will be presented at the Water Environment Federation conference in New Orleans, Louisiana and also in Raleigh, North Carolina.

The sewer collection personnel continually evaluate and maintain our system of sewer manholes, pipes, and pump stations to ensure that the system is operating properly, and to prevent spills. Likewise, the wastewater treatment plant, which continually operates 24/7/365, is operated and maintained to ensure compliance with all State and Federal permits and regulations.



Permit Information

Collection System

Permit No. WQCS00077

Will Baker, Assistant
Utilities Director/ORC

919/732-9459



Wastewater Treatment Plant

Permit No. NC0026433

Jeff Mahagan, Plant
Superintendent/ORC

919/732-2681

En español

Este documento está disponible en español en la oficina que factura y en el sitio web del Pueblo.

Collection Systems Management

The Town's underground water utilities consist of a maze of pipes, valves, and pumps. The system that distributes the drinking water to the customers is called the distribution system, and the system that collects the wastewater and transports it to the wastewater treatment plant is called the collection system. Hillsborough's collections system is made up of 96.5 miles of pipe, 1907 manholes, and 24 pump stations. Five employees are responsible for the day-to-day operations of the system.

Every year the staff must hydraulically clean and inspect a minimum of 10 percent of the gravity lines in the system (9 miles). The gravity lines are inspected using a closed-circuit television camera that produces a film on digital video disc. The video is used to locate areas where the lines are failing or need maintenance. Additional staff duties include: mowing and inspecting sewer easements twice per year, maintaining and operating the pump stations, and responding to any emergencies that might happen during the day or at night. Most emergency responses are for pump station problems.

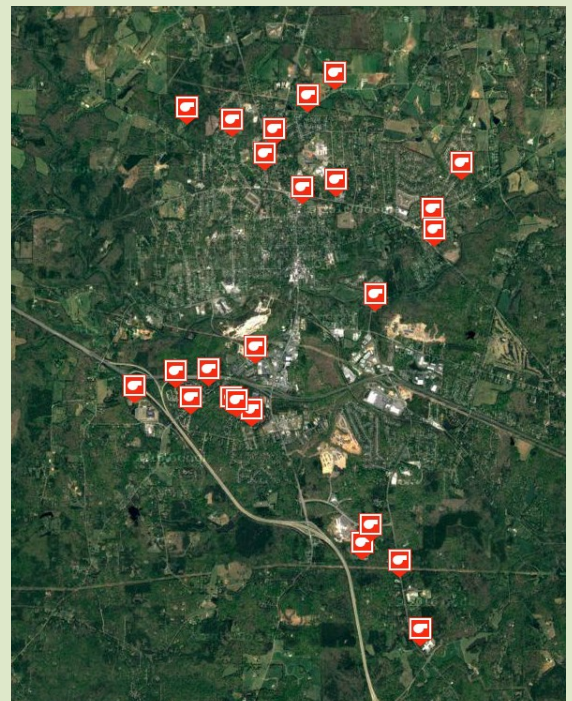
Whenever possible, gravity is by far the most cost-effective way to transport water. However, pump stations are often necessary to keep the wastewater flowing to the wastewater treatment plant. Pump stations are very expensive to operate, and failures can result in sanitary sewer overflows and fines.

Unfortunately, Hillsborough has many more pump stations than a typical municipality. Hillsborough has three times the number of pump stations per million gallons treated when compared to Mebane, and nearly twelve times more than Raleigh, due mostly to our rolling terrain.

Within the past five years, two pump stations have been successfully eliminated as a result of the Waterstone development project. Three other pump stations have been substantially upgraded; one as part of the Waterstone project, and the other two as part of Town financed projects on Elizabeth Brady Road and Rencher Street. Within the next few months, a new pump station is planned to begin operation in the Corbinton Commons development, which will replace the existing Orange High School Pump Station.



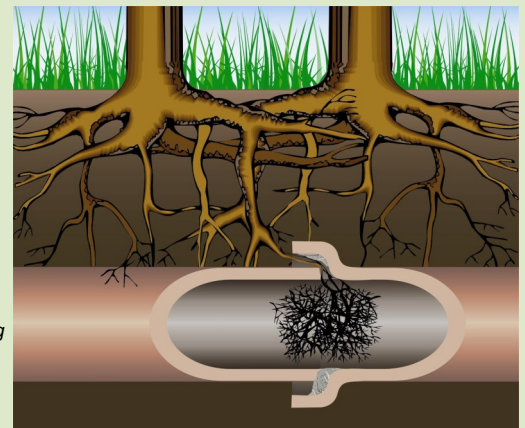
Cedar Ridge Pump Station



24 Pump Stations in Hillsborough



Left: Water jetting cleans/clears sewer pipes



Right: Tree roots growing into sewer pipes.

Collection Systems Performance

Number of Pump Stations: 24

Miles of Gravity Sewer in System: 80.28

Miles of Force Main Sewer: 16.23

*Miles of Public Gravity Sewer
Root Treatment:* 0

Miles of Pipe Cleaned/Videoed: 7.45

*Miles of Public Sewer Smoke
Tested:* 0.70

Number of Manholes: 1,917

Number of Manholes Inspected: 89

Number of Manholes Relined: 8



Sanitary Sewer Overflows

FY16

Spill #	Date	Location	Cause of Spill	Spill Volume (gal)	Volume Reaching Surface Water (gal)
1	10/30/15	Stroud's Creek Pump Station	Manhole/main break	800	0
2	12/23/15	Riverwalk/Eno River Outfall	Severe Weather Event	5,500	5,500
3	03/19/16	212 Mollie's Court	Grease	900	400

Wastewater Treatment

The wastewater treatment plant provides service for all of Hillsborough and several of the surrounding communities. The plant has the capacity to treat up to a maximum monthly average of 3.0 Million Gallons per Day. Currently the plant is operating at slightly over half capacity.

Wastewater treatment is accomplished through a series of treatment processes and stages: preliminary treatment, secondary treatment (5-stage biological nutrient removal), tertiary treatment (filtration), disinfection, dechlorination, post-aeration, and solids processing.

After the treatment processes are complete, the water is released back into the Eno River, and the stabilized waste solids (biosolids) are beneficially reused as a soil amendment/fertilizer on several neighboring agricultural fields or transported to a composting facility.



Wastewater Plant Permits

The wastewater plant operates under state issued permits. State regulators enforce these permits through review of required reports and inspections of facilities. Non-compliance with any part of the permit may result in a Notice of Violation (NOV). An NOV may also include fines of up to \$25,000 per day per violation. The Town's wastewater plant has received no NOV's since FY09.

- National Pollutant Discharge Elimination System Permits
Wastewater Discharge No. NC0026433
Stormwater Discharge No. NCG110000
- North Carolina Division of Water Quality Permits
Residuals Land Application No. WQ0000011
Laboratory Certification Certificate No. 121

Our Mission

To protect, preserve, and enhance the Eno River by managing the wastewater treatment processes in an efficient and economical manner.

Our Vision

Instill in our customers a sense of pride and contentment—knowing that their local wastewater utility is diligently working to provide outstanding environmental protection for today, and for the future generations to come.

Our Objectives

- Provide good stewardship of the resources entrusted to us by the Town of Hillsborough residents and customers.
- Treat the wastewater to a quality that provides a healthy environment for the Eno River aquatic life, the downstream recreational users, and the downstream drinking water supplies.
- Manage the Biosolids program in a way that is beneficial to both the environment and the local farmers that use the product.
- Proactively work with pertinent local and state agencies, organizations, and individuals to monitor and protect the region's water, soil, and air environments.

Wastewater Treatment Performance



The wastewater treatment plant continues to produce excellent water quality. All parameters measured not only meet, but far exceed the standards as enforced by the discharge limitations of the permit.

In addition to the excellent water quality, the wastewater plant staff received recognition in a national magazine for excellence in team building and leadership. To see the article go to <http://www.scribd.com/doc/261722804/May-2015>.

Many tours of the facilities were given in FY16. Other municipalities, engineers, school programs (both high schools and Universities), and also Hillsborough citizens all came to see the new facilities. If you would like to tour the plant please call 919/ 732-2681 to schedule.

Facility Performance

- No Violations of any permit in FY16
- No Non-compliances in FY16

INSPECTIONS

- Passed NC facility inspection
- Passed NC laboratory inspection
- Passed NC stormwater inspections

	PERMIT LIMIT	2015 ACTUAL	2014 ACTUAL	2013 ACTUAL
Avg Daily Flow	n.a.	1.113 mgd	0.935 mgd	0.921 mgd
Max Month Flow	3.0 mgd	1.628 mgd	1.299 mgd	1.142 mgd
BOD	5.0 mg/L	<2.0 mg/L	<2.0 mg/L	<2.0 mg/L
Ammonia (as N)	2.0 mg/L	<0.1 mg/L	<0.1 mg/L	<0.1 mg/L
Total Nitrogen	50,228 lb/yr	6,651 lb/yr	6,670 lb/yr	18,312 lb/yr
Total Phosphorous	2.0 mg/L	0.876 mg/L	1.073 mg/L	0.965 mg/L

Protect Your Home and Environment from Damaging Fats, Oils and Grease



Waste food and grease are often washed into the plumbing system through kitchen sinks. The grease sticks to the insides of sewer pipes (both in your home and in the streets), and over time it can build up to the point that it blocks the entire pipe.

Commercial additives, including detergents, that claim to dissolve grease may only pass grease down the line and cause problems in other areas.

The results of blocked pipes can be:

- Raw sewage overflowing in your home or your neighbor's home—resulting in expensive and very unpleasant cleanups.
- Raw sewage overflowing into parks, yards and streets.
- Potential human contact with disease-causing organisms.
- **Higher sewer bills** for customers.



How Can You Help?

- Never pour grease or used cooking oil down sink drains or into toilets. Drains and toilets are NOT trash cans!
- Dispose/recycle used cooking oil at:
 - Orange County Household Hazardous Waste, 1207 Eubanks Road, Chapel Hill, NC
Hours: 10 a.m. -6 p.m. Monday-Friday, 8:00 a.m.-12:00 noon Saturdays
Phone: (919) 968-2788 Email: recycling@orangecountync.gov
 - Walnut Grove Convenience Center: 3605 Walnut Grove Rd., Hillsborough, NC
Hours: 7:00 a.m.-6:00 p.m. Monday, Tuesday, Thursday & Friday, 7:00 a.m.-5:00 p.m. Saturdays, and 1:00 p.m.-6:00 p.m. Sundays
- Scrape grease and food scraps from trays, pots, pans, utensils, grills and cooking surfaces into a can or the trash for disposal (or recycling where available).
- Recycle used cooking oil—never pour cooking oil down sink drains.
- Report sanitary sewer overflows immediately by calling 919-732-3621.
- For more information please see our website at: <https://www.hillsboroughnc.gov/>



“WHAT'S HAPPENIN' HILLBOROUGH?”



CLICK HERE

FY16 Summary

The Town of Hillsborough Utilities Department strives to protect the environment through the proper collection and treatment of wastewater. We continually look for ways that our systems can be improved, and implement ideas into our budget. In the past year, we have relined some of our sewer pipe along and near the Eno River, and have plans to reline additional sections east of Churton Street. We also replaced (through the pipe bursting method) an old sewer service pipe downtown under Churton Street without excavating the street or disrupting traffic. This was our first local experience with pipe bursting, and it went very well. The method allowed us to replace the existing failing pipe with a larger pipe, which greatly improved service for several local businesses, and caused minimal disruption. We will consider these rehabilitation methods in other locations, where it makes sense both operationally and financially.

As noted elsewhere in this report, we have made several improvements to our collection system over the past year. With 24 sewage pump stations around our service area, we try to make improvements to at least one of them each year to keep them all in top working condition. Since pump stations are typically a common source of system failure (due to their mechanical operation), much effort and expense goes into their operation and maintenance. Adding generators to pump stations, as we did most recently at two locations, ensures that sewage is pumped to the wastewater treatment plant even when the power is out.

Hillsborough is now in its tenth year of using the balanced scorecard system to implement and communicate the Town Board's mission, vision, strategic priorities and core values. The scorecards are a response to the Board's strategy map via initiatives, performance measures, and targets pursued by departments in their daily operations. This system was designed to help the organization become more analytical, adaptive, and responsive to the lessons it learns while trying to achieve its goals. Strategies are tested through trial and error via the performance measures in the scorecards. These businesslike techniques (used by more than half of the Fortune 1,000 companies) determine how to prioritize needs and allocate Town resources.

Thank you for your support and interest in the Hillsborough Wastewater Collection and Treatment Systems. We welcome your comments and questions throughout the year.



Availability & Certification

This report is available on the town's website www.hillsboroughnc.gov. If you would like a copy of the report please contact Julie Laws, Utilities Analyst, at 919-732-1270, ext. 72. Customers were notified of this report in the two local papers, The News of Orange County and The Chapel Hill Herald.

Certification:

I certify under penalty of law that this report is complete and accurate to the best of my knowledge. I further certify that this report has been made available to the users or customers of the named system and that those users have been notified of its availability.

Handwritten signature of Kenneth P. Keel in blue ink.

Kenneth P. Keel, P.E. Town Engineer/Utilities Director